AMENDMENTS TO THE CLAIMS

1. (currently amended) A single-mode optical fiber suitable for a WDM (Wavelength Division Multiplexing) system, comprising:

(a) a first core region positioned in the center of cross section and having a radius r_1 from the center and a relative refractive index difference $\triangle_1$;

(b) a second core region surrounding the first core region and having a radius r_2 from the center and a relative refractive index difference $\triangle_2$;

(c) a third core region surrounding the second core region and having a radius r_3 from the center and a relative refractive index difference $\triangle_3$; and

(d) a clad region surrounding the third core region and having a radius r_4 from the center and a relative refractive index difference $\triangle_4$,

(e) wherein the radii of the regions have a relation of $r_1 < r_2 < r_3 < r_4$, and the relative refractive index differences of the regions have relations of $\triangle_1 > \triangle_2$, and $\triangle_2 < \triangle_3$;

(here, $\triangle_1(\%)=[(n_1-n_c)/n_c]\times 100$, $\triangle_2(\%)=[(n_2-n_c)/n_c]\times 100$, $\triangle_3(\%)=[(n_3-n_c)/n_c]\times 100$, n_1: a refractive index of the first core region, n_2: a refractive index of the second core region, n_3: a refractive index of the third core region, n_c: a refractive index of the clad region)

(f) wherein the optical fiber uses a wavelength region from 1460 to 1625 nm, and has a dispersion value of 0.1 to 3.0 ps/nm-km at 1460 nm, 3.0 to 5.5 ps/nm-km at 1550 nm, and 4.5 to 8.0 ps/nm-km at 1625 nm, and

(g) wherein a bending loss is 0.5dB or less at 1625 nm under the condition of a bending radius of 30mm, 100 turns.

2. (original) The single-mode optical fiber according to claim 1,

wherein the optical fiber has a positive dispersion slope in the wavelength band for use.

3. (previously presented) The single-mode optical fiber according to claim 2,

wherein the optical fiber has a dispersion slope of 0.023 to 0.05 ps/nm^2-km at 1550 nm.

4. (original) The single-mode optical fiber according to claim 3,

wherein the optical fiber has an effective section area of 35 to 50μm^2 at 1550 nm.

5. (original) The single-mode optical fiber according to claim 3,

wherein the optical fiber has an effective section area of 35 to 50μm^2 at 1460 nm.

6-11. (cancelled)

12. (original) The single-mode optical fiber according to claim 1,

i) wherein the first core region has a radius r_1=3.05±0.6μm and a relative refractive index difference $\triangle_1$(%)= 0.54±0.03%;

ii) wherein the second core region has a radius r_2=5.38±0.6μm and a refractive index difference $\triangle_2$ = -0.20±0.03%; and

iii) wherein the third core region has a radius r_3=9.96±0.6μm and a specific refractive index difference $\triangle_3$ = 0.07±0.03%.

13. (original) The single-mode optical fiber according to claim 1,

i) wherein the first core region has a radius r_1=3.05±0.6μm and a relative refractive index difference $\triangle_1$(%)= 0.55±0.03%;

ii) wherein the second core region has a radius r_2=5.75±0.6μm and a relative refractive index difference $\triangle_2$ = -0.18±0.03%; and

iii) wherein the third core region has a radius r_3=10.79±0.6μm and a relative refractive index difference $\triangle_3$ = 0.09±0.03%.

14. (original) The single-mode optical fiber according to claim 1,

i) wherein the first core region has a radius r_1=3.12±0.6μm and a relative refractive index difference $\triangle_1$(%)= 0.53±0.03%;

ii) wherein the second core region has a radius r_2=5.56±0.6μm and a relative refractive index difference $\triangle_2$ = -0.23±0.03%; and

iii) wherein the third core region has a radius r_3=9.92±0.6μm and a relative refractive index difference $\triangle_3$ = 0.10±0.03%.

15. (original) The single-mode optical fiber according to claim 1,

i) wherein the first core region has a radius r_1=3.24±0.6μm and a relative refractive index difference $\triangle_1$(%)= 0.48±0.03%;

ii) wherein the second core region has a radius r_2=5.72±0.6μm and a relative refractive index difference $\triangle_2$ = -0.17±0.03%; and

iii) wherein the third core region has a radius r_3=8.54±0.6μm and a relative refractive index difference $\triangle_3$ = 0.15±0.03%.

16. (original) The single-mode optical fiber according to claim 1,

i) wherein the first core region has a radius r_1=3.37±0.6μm and a relative refractive index difference $\triangle_1$(%)= 0.50±0.03%;

ii) wherein the second core region has a radius r_2=5.77±0.6μm and a relative refractive index difference $\triangle_2$ = -0.25±0.03%; and

iii) wherein the third core region has a radius r_3=9.35±0.6μm and a relative refractive index difference $\triangle_3$ = 0.14±0.03%.

17. (original) The single-mode optical fiber according to claim 1,

i) wherein the first core region has a radius r_1=3.18±0.6μm and a relative refractive index difference $\triangle_1$(%)= 0.51±0.03%;

ii) wherein the second core region has a radius r_2=6.18±0.6μm and a relative refractive index difference $\triangle_2$ = -0.19±0.03%; and

iii) wherein the third core region has a radius r_3=8.65±0.6μm and a relative refractive index difference $\triangle_3$ = 0.14±0.03%.

18. (currently amended) A single-mode optical fiber suitable for a WDM (Wavelength Division Multiplexing) system, comprising:

(a) a first core region positioned in the center of cross section and having a radius r_1 from the center and a relative refractive index difference $\triangle_1$;

(b) a second core region surrounding the first core region and having a radius r_2 from the center and a relative refractive index difference $\triangle_2$;

(c) a third core region surrounding the second core region and having a radius r_3 from the center and a relative refractive index difference $\triangle_3$; and

(d) a clad region surrounding the third core region and having a radius r_4 from the center and a relative refractive index difference $\triangle_4$,

(e) wherein the radii of the regions have a relation of $r_1 < r_2 < r_3 < r_4$, and the relative refractive index differences of the regions have relations of $\triangle_1 > \triangle_2$, and $\triangle_2 < \triangle_3$;

(here, $\triangle_1(\%)=[(n_1-n_c)/n_c]\times100$, $\triangle_2(\%)=[(n_2-n_c)/n_c]\times100$, $\triangle_3(\%)=[(n_3-n_c)/n_c]\times100$, n_1: a refractive index of the first core region, n_2: a refractive index of the second core region, n_3: a refractive index of the third core region, n_c: a refractive index of the clad region)

(f) wherein the optical fiber uses wavelength region from 1460 to 1625 nm, and has a dispersion value of 0.1 to 3.0 ps/nm-km at 1460 nm, 3.0 to 5.5 ps/nm-km at 1550 nm, and 4.5 to 8.0 ps/nm-km at 1625 nm;

(g) wherein a dispersion slope at 1550 nm is 0.023 to 0.05 ps/nm^2-km;

(h) wherein an effective section area at 1550 nm is 35 to 50μm^2; and

(i) wherein a bending loss is 0.5dB or less at 1625 nm under the condition of a bending radius of 30mm, 100 turns.

19. (original) The single-mode optical fiber according to claim 18,

wherein the optical fiber has an effective section area of 35 to 50μm^2 at 1460 nm.

20. (original) The single-mode optical fiber according to claim 18,

herein the optical fiber has a cutoff wavelength of 1450 nm or below.

21. (original) The single-mode optical fiber according to claim 18,

wherein a zero-dispersion wavelength is located at 1460 nm or below.

22. (original) The single-mode optical fiber according to claim 18,

wherein the optical fiber has a dispersion value of 0.3 to 2.4 ps/nm-km at 1460 nm.

23. (original) The single-mode optical fiber according to claim 18,

wherein the optical fiber has a dispersion value of 3.2 to 5.2 ps/nm-km at 1550 nm.

24. (original) The single-mode optical fiber according to claim 18,

wherein the optical fiber has a dispersion value of 4.8 to 7.7 ps/nm-km at 1625 nm.

25. (cancelled)

26. (previously presented) An optical transmission line comprising at least in part the optical fiber according to claim 1.

27. (previously presented) An optical transmission system having an optical transmission path comprising at least in part the optical transmission line according to claim 26.

28. (previously presented) The single-mode optical fiber according to claim 4,

wherein the optical fiber has a cutoff wavelength of 1450 nm or below.

29. (previously presented) The single-mode optical fiber according to claim 5,

wherein the optical fiber has a cutoff wavelength of 1450 nm or below.

30. (previously presented) The single-mode optical fiber according to claim 4, wherein a zero-dispersion wavelength is located at 1460 nm or below.

31. (previously presented) The single-mode optical fiber according to claim 5, wherein a zero-dispersion wavelength is located at 1460 nm or below.

32. (previously presented) The single-mode optical fiber according to claim 4, wherein the optical fiber has a dispersion value of 0.3 to 2.4 ps/nm-km at 1460 nm.

33. (previously presented) The single-mode optical fiber according to claim 5, wherein the optical fiber has a dispersion value of 0.3 to 2.4 ps/nm-km at 1460 nm.

34. (previously presented) The single-mode optical fiber according to claim 4, wherein the optical fiber has a dispersion value of 3.2 to 5.2 ps/nm-km at 1550 nm.

35. (previously presented) The single-mode optical fiber according to claim 5, wherein the optical fiber has a dispersion value of 3.2 to 5.2 ps/nm-km at 1550 nm.

36. (previously presented) The single-mode optical fiber according to claim 4, wherein the optical fiber has a dispersion value of 4.8 to 7.7 ps/nm-km at 1625 nm.

37. (previously presented) The single-mode optical fiber according to claim 5, wherein the optical fiber has a dispersion value of 4.8 to 7.7 ps/nm-km at 1625 nm.

38-39. (cancelled)